

COVID-19 Test Positivity Rate in CCDOC  
 To: CCSO Executive Staff  
 Date: May 18, 2020

### Objective:

Defined as the ratio of positive cases to total tests within a population, test positivity rate (TPR) serves as a useful tool to identify the degree of spread for highly contagious diseases such as malaria. Due to limited COVID-19 testing capacity, researchers have suggested using TPR as a proxy to track the spread of the virus.

This memo provides a daily summary of COVID-19 tests and the test positivity rate for detainees in the Cook County Department of Corrections (CCDOC) from March 20, 2020 to May 16, 2020. It then compares the TPR before and after asymptomatic testing was introduced on April 16, 2020. TPR of detainees is calculated by dividing the number of detainees who tested positive over the total number of tests performed each day.

### Analysis:

Table 1 shows the daily number of tests, positive cases, and the test positivity rate for detainees between March 20, 2020 and May 16, 2020. The dates for the number of positive cases are based on their test dates. For instance, if a detainee was tested on 3/20/2020 and tested positive on 3/23/2020, this positive case was categorized under 3/20/2020.

Table 1: Daily Number of Tests and Positive Cases

Test Date	Number of Tests	Number of Positive Cases	Test Positivity Rate
3/20/2020	5	5	100%
3/21/2020	7	5	71%
3/22/2020	9	8	89%
3/23/2020	8	7	88%
3/24/2020	22	21	95%
3/25/2020	24	21	88%
3/26/2020	27	24	89%
3/27/2020	18	18	100%
3/28/2020	50	48	96%
3/29/2020	7	6	86%
3/30/2020	23	21	91%
3/31/2020	19	17	89%
4/1/2020	23	21	91%
4/2/2020	21	14	67%
4/3/2020	11	11	100%
4/4/2020	11	8	73%
4/5/2020	6	6	100%
4/6/2020	22	19	86%

<b>4/7/2020</b>	37	32	86%
<b>4/8/2020</b>	23	21	91%
<b>4/9/2020</b>	17	17	100%
<b>4/10/2020</b>	14	11	79%
<b>4/11/2020</b>	18	17	94%
<b>4/12/2020</b>	11	10	91%
<b>4/13/2020</b>	17	12	71%
<b>4/14/2020</b>	13	11	85%
<b>4/15/2020</b>	13	11	85%
<b>4/16/2020</b>	17	7	41%
<b>4/17/2020</b>	67	43	64%
<b>4/18/2020</b>	7	6	86%
<b>4/19/2020</b>	12	7	58%
<b>4/20/2020</b>	81	36	44%
<b>4/21/2020</b>	83	25	30%
<b>4/22/2020</b>	40	7	18%
<b>4/23/2020</b>	60	12	20%
<b>4/24/2020</b>	72	5	7%
<b>4/25/2020</b>	68	21	32%
<b>4/26/2020</b>	46	1	2%
<b>4/27/2020</b>	57	9	16%
<b>4/28/2020</b>	67	10	15%
<b>4/29/2020</b>	31	7	23%
<b>4/30/2020</b>	38	13	24%
<b>5/1/2020</b>	88	14	9%
<b>5/2/2020</b>	46	13	28%
<b>5/3/2020</b>	51	3	6%
<b>5/4/2020</b>	68	2	3%
<b>5/5/2020</b>	97	17	17%
<b>5/6/2020</b>	51	8	14%
<b>5/7/2020</b>	40	4	10%
<b>5/8/2020</b>	37	1	3%
<b>5/9/2020</b>	40	3	8%
<b>5/10/2020</b>	35	1	3%
<b>5/11/2020</b>	36	2	6%
<b>5/12/2020</b>	35	0	0%
<b>5/13/2020</b>	86	3	3%
<b>5/14/2020</b>	44	1	2%
<b>5/15/2020</b>	47	0	0%
<b>5/16/2020</b>	39	3	8%
<b>TOTAL</b>	<b>2,062</b>	<b>706</b>	<b>34%</b>

Figure 1 graphs the daily test positivity rate. It does not label test positivity rate of 0% and 100% for a simpler display of the data points.

Figure 1: Change in Test Positivity Rate (March 20 – May 16, 2020)

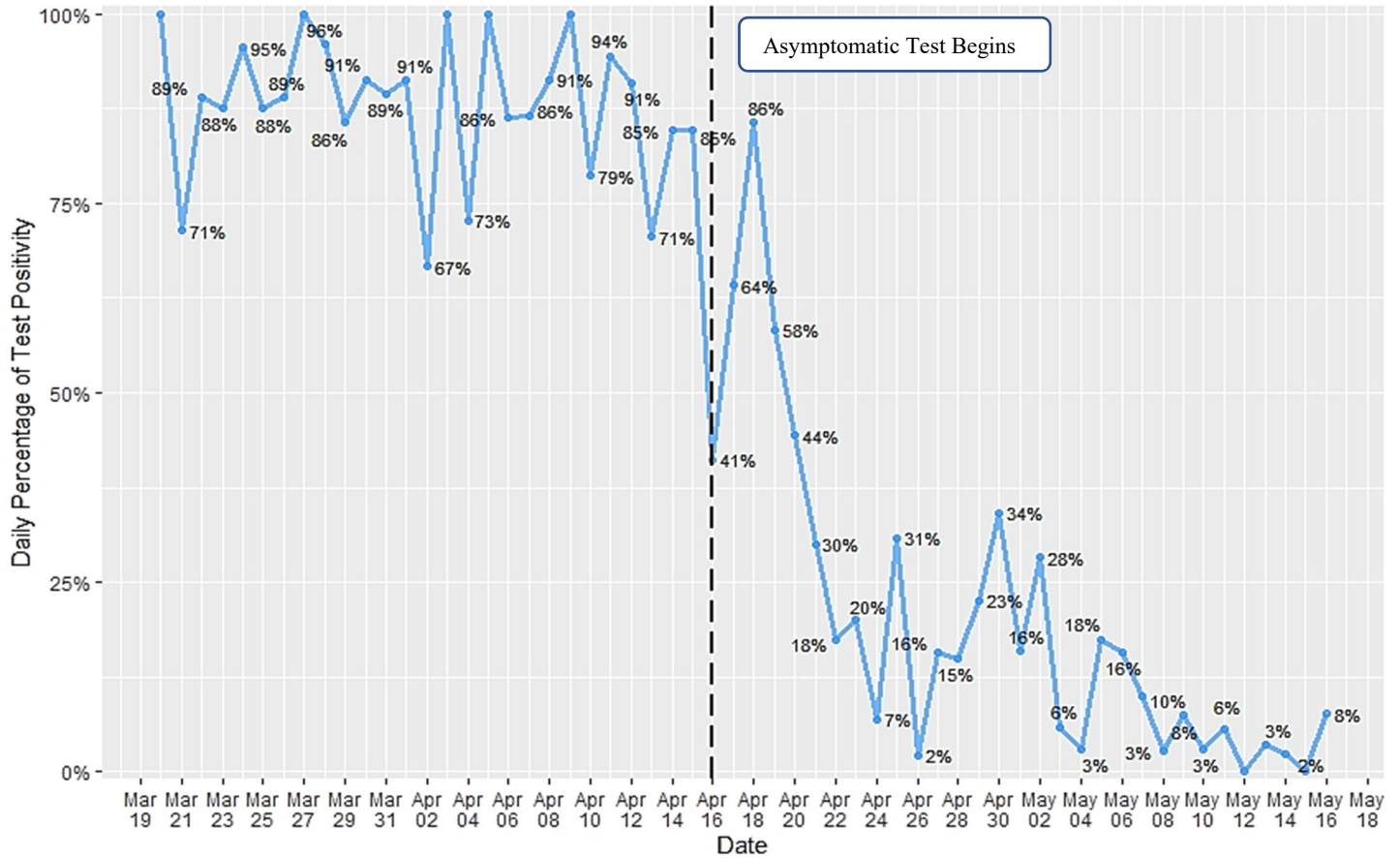


Table 2 compares the average test positivity rate of before and after the introduction of asymptomatic testing, which began on April 16, 2020. As the number of COVID-19 tests increased after April 16, 2020, the average test positivity rate decreased from 89% to 18%.

Table 2: Test Positivity Rate Before and After Asymptomatic Testing

	Number of Tests	Number of Positive Cases	Test Positivity Rate
Before (March 20 – April 15, 2020)	476	422	89%
After (April 16 – May 16 2020)	1,586	284	18%

## **Methodology**

The information on COVID-19 tests and positive results for detainees in CCDOC custody are provided by Cermak. The data for this analysis was cleaned on May 18, 2020.

The test positivity rate was calculated by dividing the number of positive cases over the total number of tests with positive or negative results.